



---

---

# ***Naval Oceanography***

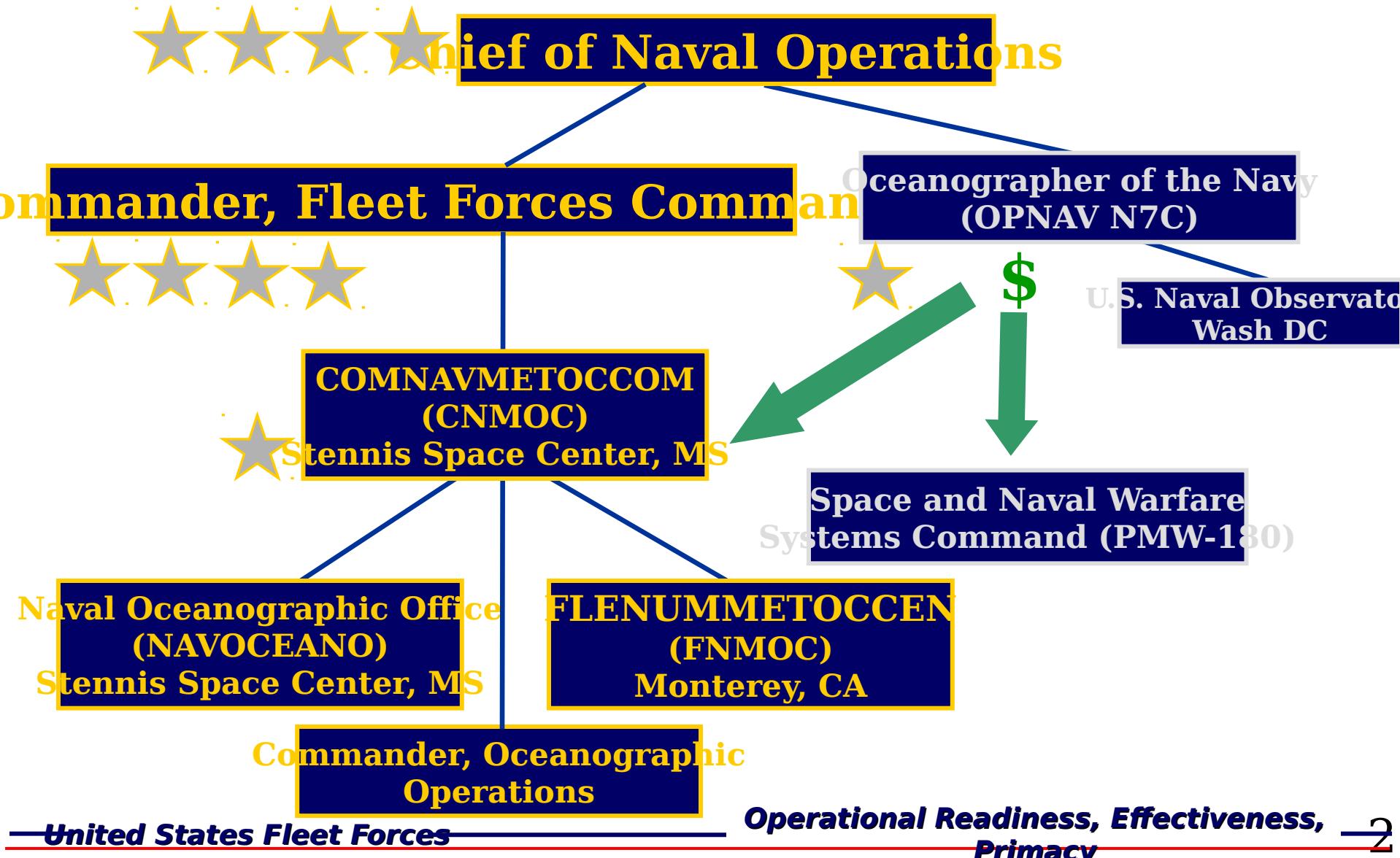
## ***Enabling Warfighter Effectiveness***



***5 December, 2005***  
***RDML Fred Byus***  
***Oceanographer of the Navy***



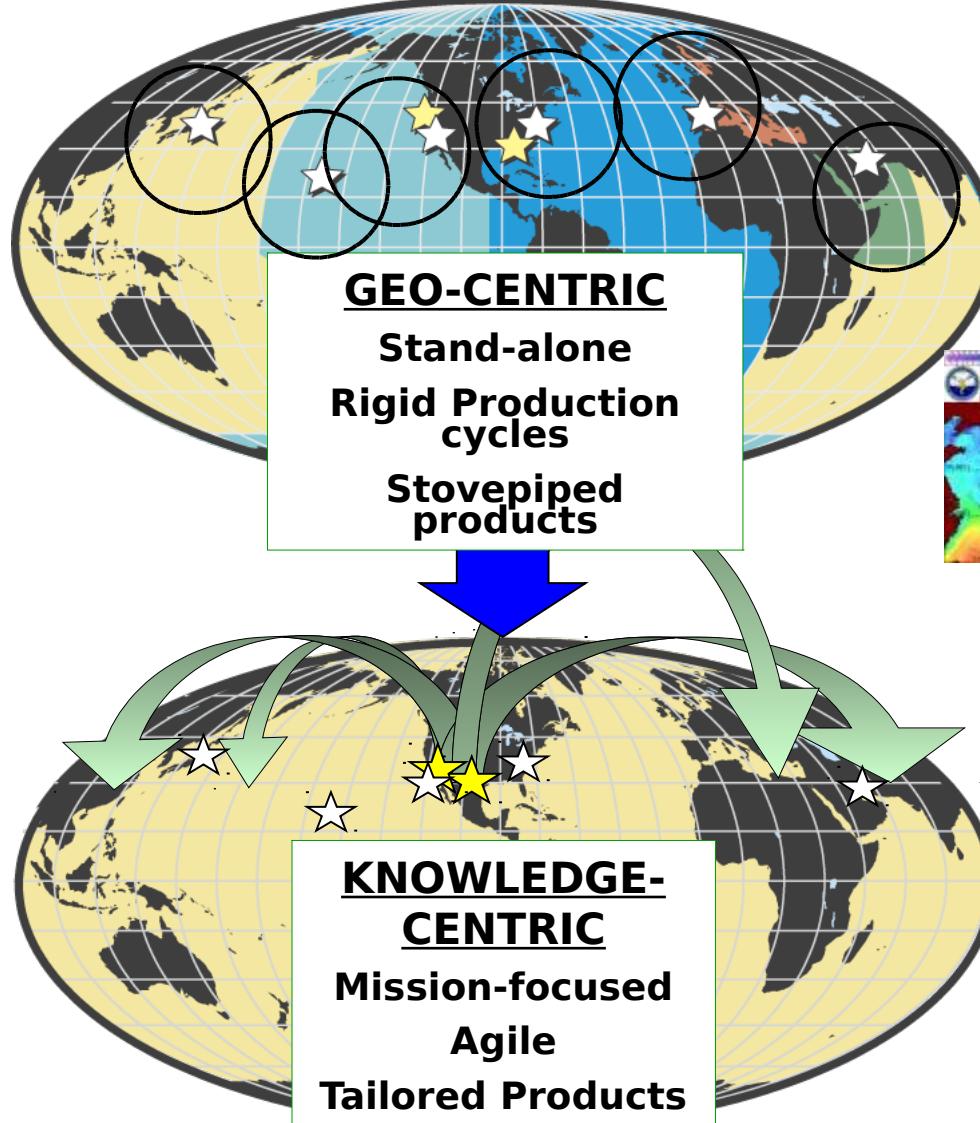
# **Aligned to Win within the Navy...**





# Aligned to Win

*...and Naval Oceanography*



## TEAM CONCEPT

- Responsive to War Fighter
- Robust reach-back capability
- Rapid Global Deployment

*Operational Readiness, Effectiveness, Primacy*



# Focus on Warfighting

Anti-Submarine Warfare

Naval Special Warfare

Mine Warfare

ISR

Precise Time and  
Astrometry

Fleet Operations

Maritime

Aviation

***Increase Focus/  
Dominant Sea Power  
Readiness***

***Maintain Excellence/  
Environmental Understanding  
Readiness***

***Increase Efficiency/  
Safety and Readiness***

***Operational Readiness, Effectiveness,  
Primacy***



# Ocean on Demand

## Critical Enabler for Warfighting Effectiveness

### Get the Ocean\* Right

- At the right time, the right scale and the right place

Agile and Predictive...moving beyond historical databases to exploit maneuver in both space and time

Scientifically Rigorous...because the simple, easy to understand wrong answer may kill us

\*Ocean: Atmosphere to the bottom of the sea floor

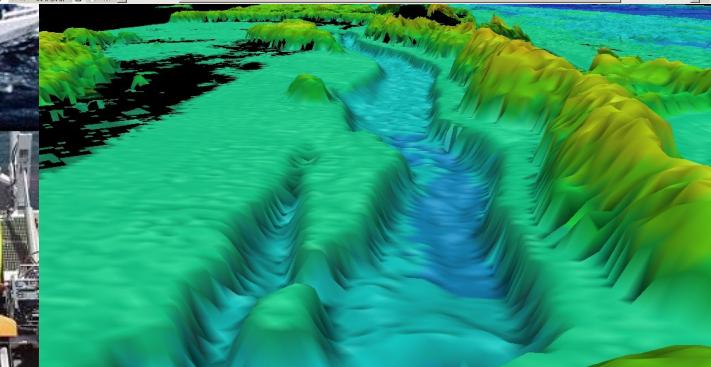
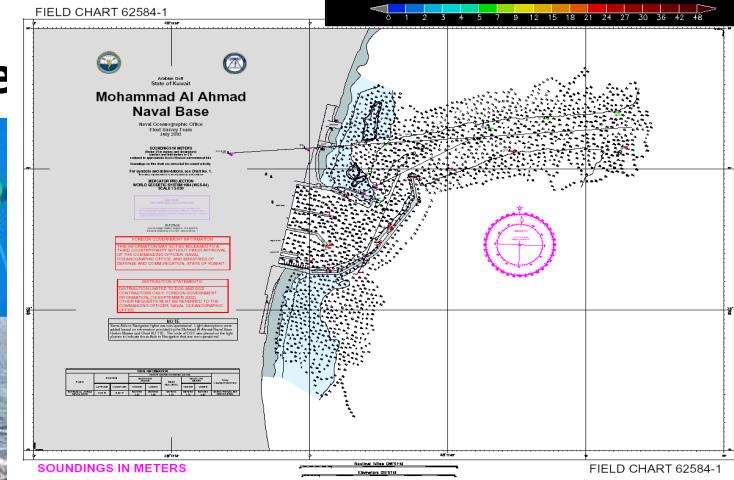
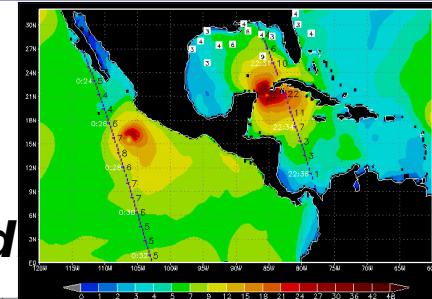


# OOD - Surveying and Sensing

**Foundation for all Ocean Prediction**

**Provides the initial and lateral boundary conditions**

**Enables Safe Navigation of our Fleet**





# OOD - Assimilation and Prediction

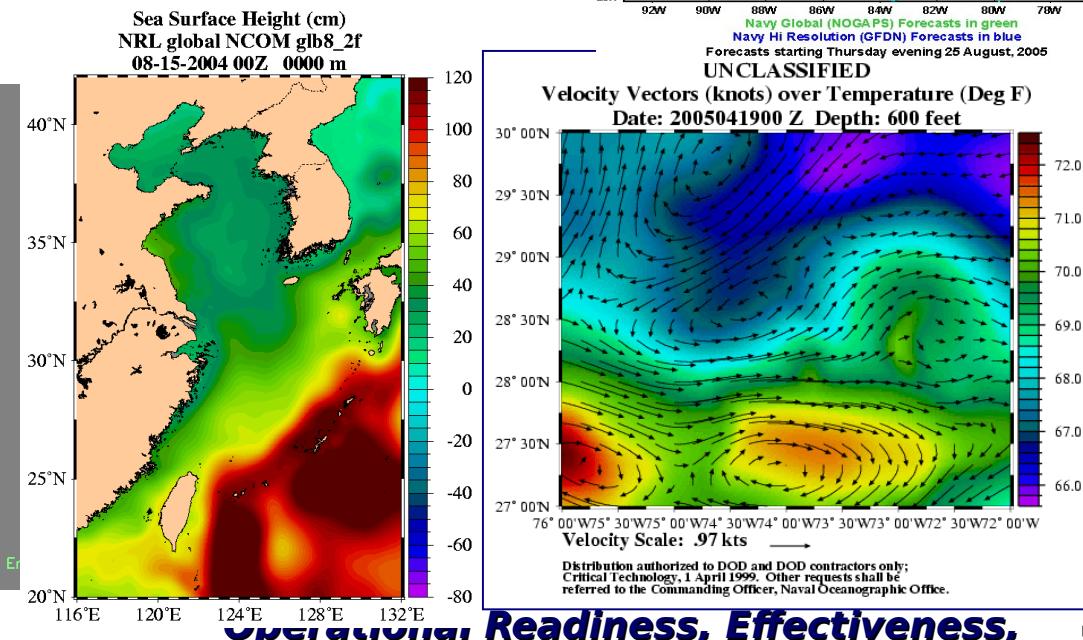
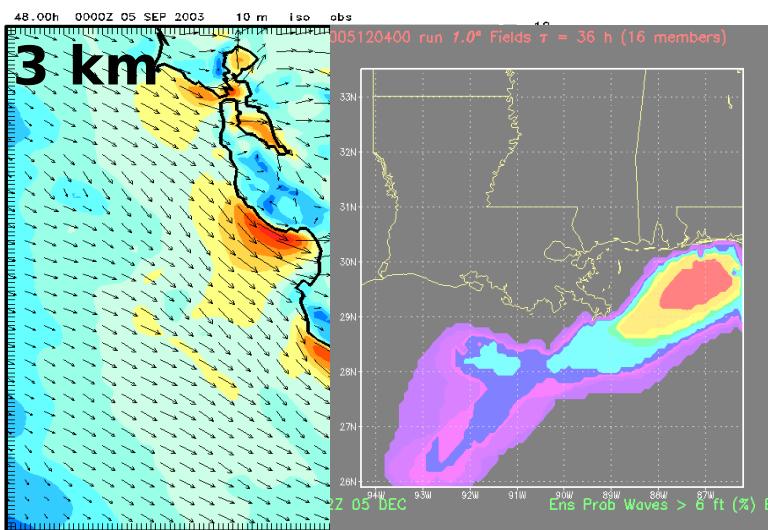
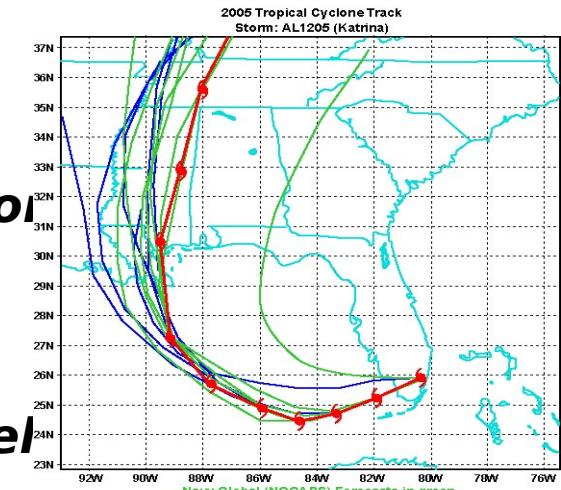
**Modeling the Atmosphere to the Sea Floor**

**Continuous Solution**

- Short range → Days → Weeks → Seasonal
- Long term

**Ensembles**

- Develop the right branches and sequel





# OOD - Delivery

***World class expertise, working the right task, 24/7 at reach back and production centers tightly aligned with...***

***Small footprint of Oceanographers / AGs, high SA, engaged in warfighting***

***Communicate through the DoD C4I network (no stovepipes)***



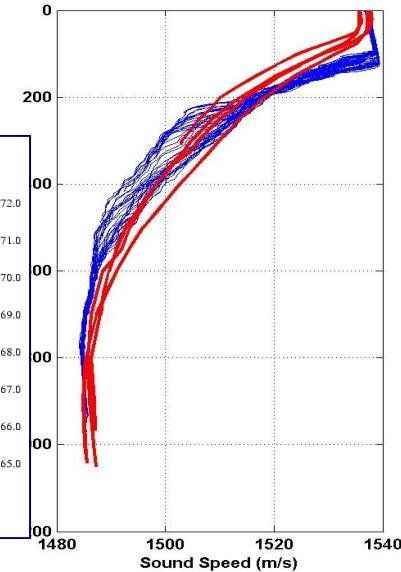
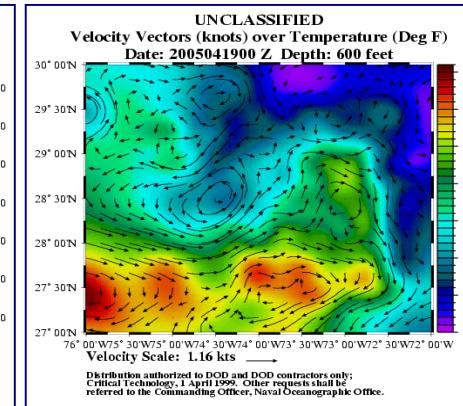
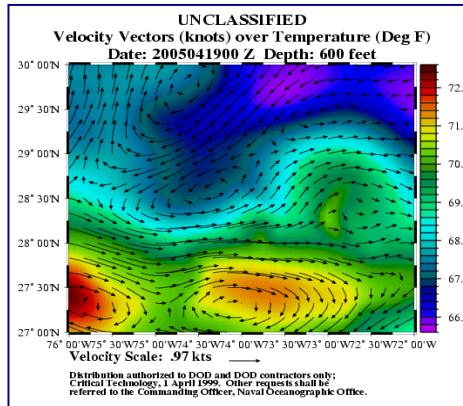
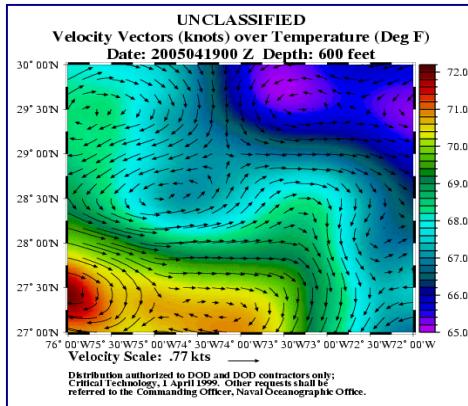
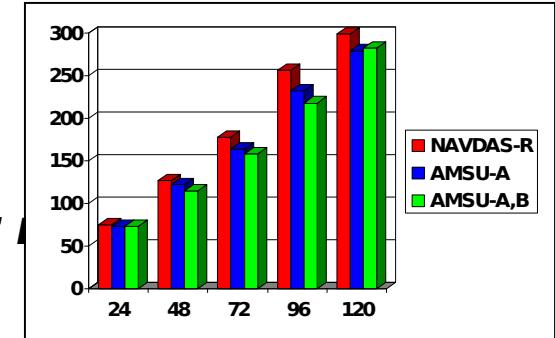


# OOD - Built in Improvement

*Learn by doing...repeatedly*

*Experiment to the right solution*

*Validation and verification...improve our  
and sensing strategy*

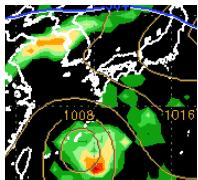




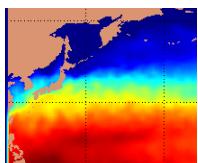
# Ocean on Demand is...



*An overarching enabling concept*



*A grand challenge*



*Ocean on Demand is not:*  
*- A done deal*



*Ocean prediction is 40 years behind the atmosphere; our adversaries will not give us four decades to catch up.*